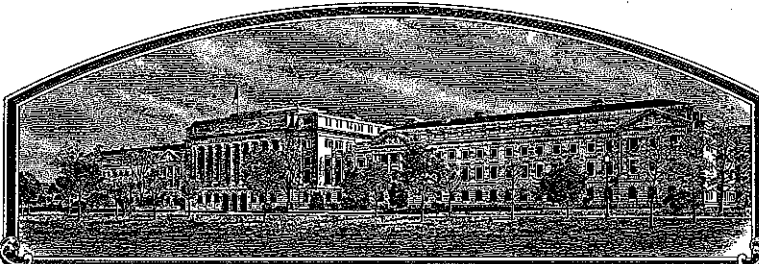


No.

200400055



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Washington State University Research Foundation and
the Secretary of Agriculture, U.S. Department of Agriculture

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE SAID APPLICANT(S) TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR PROPAGATING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED IN THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

PEACH

'TruGold'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this seventh day of August, in the year two thousand and six.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Washington State University Research Foundation and the Secretary of Agriculture, U.S. Department of Agriculture		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME P21-5-2n		3. VARIETY NAME TruGold	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 1610 NE Eastgate Blvd. Pullman, WA 99163 USA		5. TELEPHONE (include area code) (509) 335-5526		FOR OFFICIAL USE ONLY PVPO NUMBER 2004 00055 FILING DATE Dec. 29, 2003	
		6. FAX (include area code) (509) 335-7237			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION Washington		9. DATE OF INCORPORATION July 7, 1939	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) Dr. Ralph Scorza USDA-ARS Appalachian Fruit Research Station 45 Wiltshire Road Kearneysville WV 25430				FILING AND EXAMINATION FEES: \$ 3652.00 DATE 12/29/03 CERTIFICATION FEE: \$ 768.00 DATE 4/12/06	
11. TELEPHONE (include area code) 304-725-3451		12. FAX (include area code) 304-728-2340		13. E-MAIL rscorza@afrs.ars.usda.gov	
14. CROP KIND (Common Name) Edible Peach		15. GENUS AND SPECIES NAME OF CROP Prunus persica (L.) Batsch		16. FAMILY NAME (Botanical) Rosaceae	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)			
19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no", go to item 22)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED			
21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)		22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)			
23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		24. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER Ken Spitzer		SIGNATURE OF OWNER			
NAME (Please print or type) Ken Spitzer		NAME (Please print or type)			
CAPACITY OR TITLE Interim Director		DATE 12/20/03		CAPACITY OR TITLE DATE	

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

~~Foundation seed of Eden was sold for Registered seed increase on March 15, 2003.~~

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed.htm>

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 3.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotope, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

ST-470 (02-10-2003) designed by the Plant Variety Protection Office with Word 2000. Replaces former versions of ST-470, which are obsolete.

EXHIBIT A - ORIGIN AND BREEDING HISTORY 'TruGold' Peach

1. Genealogy

Peach selection P-21-5-1n was obtained in 1973 by Dr. T.K. Toyama as a spontaneous haploid seedling from seed of Prosser peach selection P-2-1 which originated from a cross of 'Redhaven' x 'Veefreeze' (Toyama, HortScience 9:187-188, 1974). This haploid seedling was described by Dr. Toyama as "Vigorous on diploid rootstock. Trunk slightly gnarled. Unfruitful." 'TruGold' (diploid 'TruGold') was produced by Dr. Toyama in 1976 by colchicine treatment of a shoot of P-21-5-1n, following the method described in Toyama, 1974 (HortScience 9:187-188). 'TruGold' ('TruGold') was described as vigorous. Flowers were described as non-showy, pollen-fertile, and moderately productive. Fruit were described as medium-large, round, medium blush, very firm, attractive, and freestone with yellow, course, juicy flesh and fair quality, ripening two weeks after 'Redhaven' peach.

2. Stages of selection and evaluation.

In February 1984 Dr. Ralph Scorza requested from Dr. Toyama haploid (P-21-5-1n) and doubled haploid 'TruGold' ('TruGold'). In 1984 P21-5-1n and 'TruGold' were propagated onto rootstock and planted in the field at the U.S. Department of Agriculture, Agricultural Research Service Appalachian Fruit Research Station (AFRS) in Kearneysville, West Virginia. In 1985 Dr. Scorza outlined in a letter his intention to Dr. Toyama to develop F₁ hybrid peaches to produce seed-propagated varieties.

In 1987 'TruGold' was fruiting at AFRS. Observations of the tree and fruit noted the high quality of fruit produced by this clone. Formal evaluations were made in 1987, 1998, 1999, 2000, 2001, 2002, and 2003 that included ripe date, size, shape, pubescence, % red blush, background color, attractiveness, firmness, flesh adherence to stone, and additional notes (Table 1). During the period between 1987-1998 'TruGold' was kept under observation but evaluations were not formally recorded.

3a Uniformity of the Variety

In 1993 'TruGold' was self-pollinated by enclosing an entire tree in a parachute to exclude insects that could carry pollen from other peach trees. The twenty-one seedlings produced by self-pollination first fruited in 1996. They were evaluated from 1996 until 2003. In each year it was determined by observation that most trees (see 3b) were both uniform and identical to the self-pollinated parent tree in tree and fruit characteristics (Table 1). 'TruGold' was self-pollinated again in 1998 and a population of 18 seedlings evaluated in 2001 through 2003. This seedling population confirmed the uniformity and trueness-to-type of trees produced by self-pollination of 'TruGold' as was observed in the previous (1993) self-pollination.

3b. Stability of the variety

Stability has been evaluated through a single generation, that is evaluation of progeny from self-pollination of the mother tree. This has been repeated twice. Self-pollination

of a 'TruGold' tree in 1993 produced 21 progeny trees. Of these 21 trees 17 were uniform and were identical to the parental tree. Four trees were classified as "off-types." These four trees differed from 'TruGold' and its typical seedlings in one or more obvious fruit characteristics such as ripe date, shape, and/or skin color. These off-types were likely the result of cross-pollination between the 'TruGold' parent tree and a surrounding tree(s) in the vicinity. Since cross-pollination occurs mainly through bee activity it is likely that a bee(s) was able to gain entrance under the covering that was placed over the parent 'TruGold' tree and was able to transfer non-'TruGold' pollen to a few flowers. No off-types were found in the seedling population developed from self-pollination of 'TruGold' in 1998. *Our observations and evaluations of fruit and tree characteristics over a period of 17 years have shown that the variety 'TruGold' is stable.*

4. Genetic variants are not expected during reproduction and multiplication.

No genetic variants have ever appeared as a result of self-pollination or vegetative propagation of 'TruGold'

JMS
1/12/06
JMS
1/26/06

Table 1. Fruit evaluations of doubled haploid peach line 'TruGold' and selfed progeny (1998**).

Year	Ripe date	Fruit set*	diameter (mm)	shape	pubescence*	% red blush	Overall Attractiveness*	Firmness*	Freeness of stone*
1987	8/20	8	64		8	70			
1998	7/30		70	round	8	80	8	8	8
1998**	7/30	8	70	round	8	80	8	8	8
1999	8/16	8	70	round	8	80	8	8	8
2000	8/01	8	73	round	8	80	8	8	8
2001	8/01	9	60	oval	9	50	6	7	8
2002	8/01	8	77	round	8	80	8	8	8
2003	8/07	2	70	round	8	60	7	8	8

*Numbers denote qualitative determinations. 7 = as good as current standard varieties, higher numbers = superior than standards.

** Indicates ratings of progeny of self-pollination of 'TruGold' that were evaluated in 1998.

Notes: 1987 – excellent flavor, texture. Small stone.

1998 – fair flavor for both 'TruGold' and progeny produced by self-pollinating 'TruGold'.

1999 – very fine flavor.

2000 – Red flesh color around the stone (RAS), prominent suture, some flavor.

2001 – RAS, tip, no flavor, not as attractive as in some years.

2002 – RAS, slight red in flesh at suture, very nice peach, low on flavor, yet not bad.

2003 – RAS, low on flavor, firm, attractive.

DRAFT Exhibit B Form

Based on overall morphology, TruGold is most similar to ALA.
Applicant's new variety *Most similar comparison variety(ies)*

TruGold most clearly differs from ALA in the following traits:
Applicant's new variety *Most similar comparison variety(ies)*

Name the specific trait, then list the value of that trait for each variety in the comparison. Attach appropriate supporting evidence (see the Guidelines for Presenting Evidence in Support of Variety Distinctness, available from the PVP Office or website).

<i>Eg. Leaf Pubescence</i> <i>Eg. Leaf Color</i> <i>Eg. Plant Height</i>	<i>heavy pubescence</i> <i>Dark Green (5GY 3/4)</i> <i>200 cm +/- 10 cm (N=25)</i>	<i>glabrous</i> <i>Light Green (2.5GY 8/10)</i> <i>250 cm +/- 15 cm (N=25)</i>	<i>photograph attached</i> <i>Munsell Color Chart</i> <i>statistics attached</i>
1. Qualitative traits: Flower type Bloom date Fertility	Applicant's New Variety <u>TruGold</u> non-showy late bloom pollen fertile 20 trees/10 years	1 st Comparison Variety <u>ALA</u> showy mid-season bloom male sterile 3 trees/3 years	Location of Evidence see photo 1 see photo 2
2. Color traits:			
3. Quantitative traits:			
4. Other:			

Use additional tables to present clear differences for additional comparison varieties. Use additional pages to present supporting evidence.

*'ALA' was derived from open pollination of the variety 'Alamar'. A haploid seedling was doubled with colchicine to produce the doubled haploid variety 'ALA'.

JMS
1/12/06

EXHIBIT B - STATEMENT OF DISTINCTNESS

'TruGold' can be distinguished from all other peach varieties through a combination of characteristics including the ability to reproduce the parental genotype through self-pollination, flower and fruit characteristics, time of bloom, and pollen fertility, among other characteristics. 'TruGold's' ability to produce progeny genetically identical to itself from self-pollination sets it apart from all known standard peaches. It shares this characteristic with all doubled haploid peaches of which few are known. Evaluations of tree and fruit of 'TruGold' and other doubled haploid genotypes are presented in Tables 2 and 3. It is distinct from other doubled haploids tested in its combination of productivity, large fruit size, excellent fruit firmness that maintains in storage, attractiveness of fruit in terms of red blush, light pubescence and good flavor. Table 2 indicates that although 'TruGold' is distinct from ALA, these two doubled haploid varieties are the closest in resemblance. Detailed descriptions of these two varieties are presented in Exhibit C. Clearly, the most dramatic differences between 'TruGold' and ALA are in the small non-showy flowers of 'TruGold' versus showy flowers of ALA and other doubled haploids including FLA and RED (Figure 1); the very late bloom of 'TruGold' in comparison to ALA and all other peach varieties that we have in our collection at USDA-ARS-AFRS (Figure 2); and the pollen fertility of 'TruGold' versus the pollen sterility of ALA and other doubled haploids including ELB and FLA.

Table 2. Fruit characteristics of 'TruGold' and other doubled haploid peaches.^{z,y}

Genotype	Ripe Date ^x	Flesh ^w	Set ^y	Diam. ^y (cm)	Shape ^y	Pubesc. ^{y,u}	Red color ^y	Firmness ^y	Pit free ^{y,t}	Attr. ^{y,s}	Notes ^t	Flower
ALA	239	M	6	7.0	R	8	7	6	7	7	TP, LFLAV	S/St ^q
ELB	237	M	5	6.5	R	7	3	3	7	4	TP, RIF	NS/St
FLA	219	N	7	5.1	O	N	7	6	7	6	RIF	S/St
LOV	239	M	7	5.1	R	5	2	-	7	4	GGC	NS/Ft
TruGold	232	M	7	6.7	R	8	7	8	7	-	-	NS/Ft
RED	219	M	7	5.7	-	-	9	7	7	5	-	S/Ft

^zDoubled haploid peach trees derived from open pollinations of 'Alamar' (ALA), 'Elberta' (ELB), 'Flavortop' nectarine (FLA), 'Lovell' (LOV), 'Redglobe' (RED), and a seedling peach selection from a cross of 'Redhaven' x 'Veefreeze' ('TruGold').

^ySubjective ratings on a scale of 1-9 with 7 and above commercially acceptable, averaged over 2 to 3 years, using five to ten fruit samples per year.

^xJulian day of the year.

^wM = melting flesh type.

^vR = round, O = oval.

^uAmount of pubescence, lower numbers = more pubescence; N=nectarine.

^tFreeness of the stone from the flesh, lower numbers are less free.

^sOverall attractiveness of the fruit.

^rGGC = green ground color, RIF = red coloration of the flesh, TP = fruit is tipped, LFLAV = low flavor level, SPLT=split pits.

^qNS= non-showy flowers, S=showy flowers, Ft=pollen fertile, St=pollen sterile.

Table 3. Tree growth and fruiting of 'TruGold' and other doubled haploid peaches, 1996-1998, 7, 8, and 9 years after field planting.

Genotype	TCSA ^z (cm ²)	No./tree	Total		g·cm ⁻² TCSA
			weight (kg)		
1996					
ELB	90 a	212 b	23.8 a		256 a
FLA	96 a	311 a	26.8 a		307 a
LOV	127 a	386 a	37.2 a		310 a
TruGold	63 c	256 b	22.2 b		331 a
RED	88 b	156 c	20.3 b		228 a
Pooled SE	17.7	69.9	6.0		72
1997					
ELB	110 b	397 a	33.6 b		314 a
FLA	164 a	523 a	47.1 a		310 a
LOV	159 a	653 a	44.6 a		315 a
TruGold	103 b	329 b	29.7 b		290 a
RED	126 b	292 b	37.4 ab		331 a
Pooled SE	10.2	38.1	3.0		25
1998					
ELB	127 ab	412 b	32.1 a		258 a
FLA	168 a	618 a	39.7 a		256 a
LOV	155 ab	564 a	35.4 a		248 a
TruGold	115 b	403 b	33.0 a		301 a
RED	136 ab	503 ab	37.5 a		282 a
Pooled SE	16.1	46.9	7.9		22

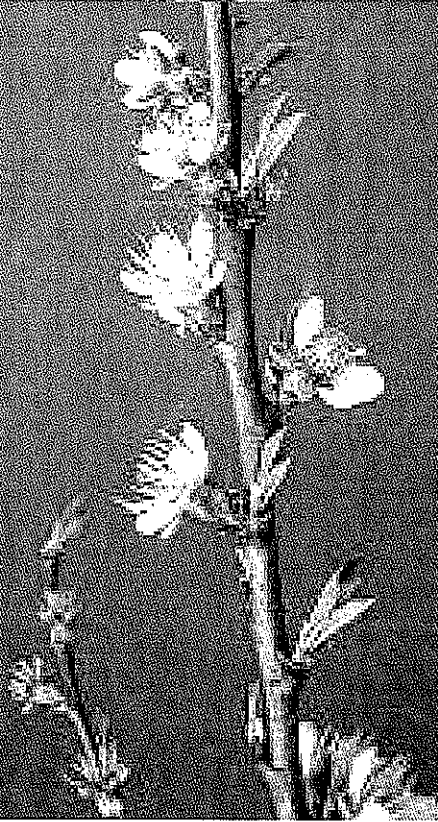
^zTrunk cross-sectional area.^yMean separation by Duncan's Multiple Range Test ($P \leq 0.001$).^xDoubled haploid trees derived from open pollinations of 'Alamar' (ALA), 'Elberta' (ELB), 'Flavortop' nectarine (FLA), 'Lovell' (LOV), 'Redglobe' (RED), and a seedling peach selection from a cross of 'Redhaven' x 'Veeffreeze' ('TruGold'). Hybrid data was based upon five single tree replications per year.^wData based upon 15 trees per year for ELB, FLA, and 'TruGold', 10 trees per year for LOV and RED.



Non-showy flowers of 'TruGold' (above) versus showy flowers on a typical comparison variety (right). Note the large size of petals in relation to size of sepals in the showy flowers.

FIGURE 1

Redhaven April 17, 2004



Reliance April 17, 2004

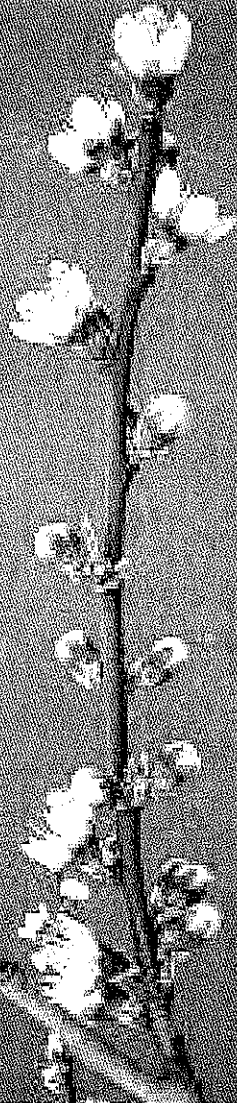


Illustration of the very late bloom characteristic of 'TruGold' peach in comparison with midseason bloom variety 'Redhaven' and relatively late bloom variety 'Reliance'. Note all buds are unopened in 'TruGold'.

FIGURE 2

TruGold April 17, 2004



200400055

National Agricultural Library Building, Room 500
Beltsville, MD 20705OBJECTIVE DESCRIPTION OF VARIETY
Peach (*Prunus* spp.) Descriptors
Variety per se

Name of Applicant(s) <i>Washington State University Research Foundation and Ralph Scorza Secretary of Agriculture, U.S. Dept. of Agriculture</i>	Variety Seed Source TruGold	Variety Name or Temporary Designation TruGold
Address (Street & No., or R.F.D. No., City, State, Zip Code and Country) USDA-ARS, Appalachian Fruit Research Station 2217 Wiltshire Road Kearneysville, WV 25430	FOR OFFICIAL USE	
	PVPO Number <i>200400055</i>	

Please describe the variety per se. If the variety is a rootstock, allow the plant to produce leaves, flowers, and fruits in order to collect the descriptive information. If the variety is a scion, graft it and the most similar comparison variety onto the same rootstock or allow both varieties to self root. Place the appropriate number that describes the varietal characters typical of this variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description. Explain codes of "other" or "variable" in the Comments section.

GENERAL VARIETY INFORMATION

- 1 (IBPGR) End Use, general :
1=Fruit use 2=Plant use 3=Both
- 1 (IBPGR) Fruit Use :
1=Scion cultivar - dessert
2=Scion cultivar - processing including distilling
3=Dual or multipurpose consumption
4=Other (specify in NOTES section or Exhibit D)
- 5 (IBPGR) Plant Use :
1=Clonal rootstock 2=Clonal interstock
3=Seedling rootstock 4=Ornamental/pollinator
5=Dual or multipurpose use 6=Botanical (wild) species
7=Other (specify in NOTES section or Exhibit D)

Name of Comparison Variety ALA1 End Use, general1 Fruit Use5 Plant Use

PLANT MATURITY

Days	Heat Units
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From Planting to First Flowering

From January 1st to Leaf Bud Burst

From Leaf Bud Burst to First Flowering

From First Flower to Last Flower

From Flowering to Immature Fruit

From Immature Fruit to Ripe Fruit

- 6 Season of Leaf Bud Burst :
1=Extremely early 2=Very early 3=Early
4=Early/intermediate 5=Intermediate 6=Intermediate/late
7=Late 8=Very late 9=Extremely late

- 9 (IBPGR) Season of Flowering, date of beginning of flowering :
1=Extremely early 2=Very early 3=Early
4=Early/intermediate 5=Intermediate 6=Intermediate/late
7=Late 8=Very late 9=Extremely late

- 5 (IBPGR) Harvest Maturity, season of maturity for picking :
1=Extremely early 2=Very early 3=Early
4=Early/intermediate 5=Intermediate 6=Intermediate/late
7=Late 8=Very late 9=Extremely late

Days	Heat Units
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From Planting to First Flowering

From January 1st to Leaf Bud Burst

From Leaf Bud Burst to First Flowering

From First Flower to Last Flower

From Flowering to Immature Fruit

From Immature Fruit to Ripe Fruit

5 Season of Leaf Bud Burst5 Season of Flowering5 Harvest Maturity

Application Variety Data

Most Similar Comparison Variety Data

VEGETATIVE DESCRIPTORS

_____ cm Plant Height, 10 years after field planting

_____ cm Plant Width, 10 years after field planting

239 cm² Trunk Cross Sectional Area, 10 years after field planting_____ Number of Lenticels per cm² on main trunk

5 (IBPGR) Tree habit of branches, natural habit of an untrained, non-juvenile tree :
 1=Extremely upright 2=Very upright 3=Upright
 4=Upright-spreading 5=Spreading 6=Spreading-drooping
 7=Drooping 8=Very Drooping 9=Weeping

5 (IBPGR) Tree Vigor, based on height and spread measurements of adult trees on their own roots, or relative to reference cultivars on the same rootstock (use reference cultivars or species on a common rootstock for each site) :
 1=Very Poor 2=Poor-weak 3=Weak
 4=Weak-intermediate 5=Intermediate 6=Intermediate-strong
 7=Strong 8=Very strong 9=Extremely strong

7 (IBPGR) Tree chilling requirement; additional information concerning the method used to measure this character must be recorded in the NOTES section or in Exhibit D :

1=Extremely low 2=Very low 3=Low
 4=Low-medium 5=Medium 6=Medium-high
 7=High 8=Very high 9=Extremely high

Number of hours of chilling required _____

Chilling temperature required _____ Celsius

Tree Bark Color :

Verbal Color Name Grey

RHS Color Chart Name Greyed-Purple Color Chart Value 201B/183C

One year old Wood Color, shade side :

Verbal Color Name Yellow-GreenColor Chart Name RHS Color Chart Value 145A

One year old Wood Color, sun side :

Verbal Color Name Greyed-PurpleColor Chart Name RHS Color Chart Value N184D

Lenticel Color :

Verbal Color Name GreyedColor Chart Name RHS Color Chart Value N167C

_____ cm Plant Height

_____ cm Plant Width

191 cm² Trunk Cross Sectional Area_____ Number of Lenticels per cm² on main trunk5 Tree habit of branches5 Tree Vigor7 Tree chilling requirement

Number of hours of chilling required _____

Chilling temperature required _____ Celsius

Tree Bark Color

Verbal Color Name Grey

RHS Name Greyed-Orange Value 201C/176B

One year old Wood Color, shade side

Verbal Color Name Yellow-GreenName RHS Value 148A

One year old Wood Color, sun side

Verbal Color Name Greyed-PurpleName RHS Value 184D

Lenticel Color

Verbal Color Name GreyedName RHS Value N167C

ROOTSTOCK DESCRIPTORS - Complete this section if the variety will be used as rootstock.

— (IBPGR) Dwarfing, direct growth controlling effect of the rootstock on cultivars :
 1=Extremely invigorating 2=Very invigorating 3=Invigorating
 4=Fairly invigorating 5=Intermediate 6=Semi-dwarfing
 7=Dwarfing 8=Very Dwarfing 9=Extremely Dwarfing

— (IBPGR) Yield Efficiency, a high yield efficiency is defined as the induction in the scion of a high yield of fruit relative to the cross sectional area of the trunk :
 1=Extremely Poor 2=Very Poor 3=Poor
 4=Poor-Intermediate 5=Intermediate 6=Intermediate-Good
 7=Good 8=Very Good 9=Extremely Good

— Dwarfing

— Yield Efficiency

Application Variety Data

Most Similar Comparison Variety Data

FLOWERING SHOOT

37 cm Yearly Growth of Shoots on 10-year old tree

52 mm Stem Diameter, current season shoots 2.5 cm from the base on 10 year old tree, at the end of the season

cm Stem Internode Length from first branch node to second branch node

Length of Stipule, young shoot, fully expanded leaf :
 1=Extremely Short 2=Very Short 3=Short
 4=Short-Medium 5=Medium 6=Medium-Long
 7=Long 8=Very Long 9=Extremely Long

3 Stem Anthocyanin Coloration, side away from sun :
 0=Absent 1=Extremely Weak 2=Very Weak 3=Weak
 4=Weak-Medium 5=Medium 6=Medium-Strong
 7=Strong 8=Very Strong 9=Extremely Strong

40 cm Yearly Growth of Shoots

43 mm Stem ~~Circumference~~ Diameter

cm Stem Length

Length of Stipule

3 Stem Anthocyanin Coloration

LEAF (mature leaf at first flowering)

mm Vegetative Bud Length

16.1 cm Leaf Length

3.2 cm Leaf Width

0.15 mm Leaf Blade Thickness

10 mm Petiole Length

1.6 mm Petiole Thickness

4 Number of Glands per Leaf Blade

0.9 mm Gland Length on Leaf Blade

mm Gland Width on Leaf Blade

Predominant Number of Nectaries (Glands) on the Petiole

1.3 mm Gland Length on Petiole

mm Gland Width on Petiole

2 Leaf Overall Shape :
 1=Elliptical 2=Lanceolate 3=Oblanceolate 4=Oblong
 5=Obovate 6=Oval 7=Ovate

1 Leaf Blade Shape, in cross section :
 1=Concave 2=Flat 3=Convex

5 Leaf Margin :
 1=Crenate 2=Dentate 3=Entire 4=Serrate 5=Serrulate

5 Leaf Apex Shape :
 1=Rounded 2=Obtuse 3=Emarginate 4=Acute 5=Acuminate

3 Leaf Blade Angle (Recurvature) at Apex :
 0=Absent 1=Extremely Small 2=Very Small 3=Small
 4=Small-Medium 5=Medium 6=Medium-Large
 7=Large 8=Very Large 9=Extremely Large

2 Leaf Base Shape :
 1=Cordate 2=Cuneate 3=Rounded 4=Sagittate 5=Truncate

2 Leaf Blade Angle at Base : 1=Acute 2=About Right Angle 3=Obtuse

mm Vegetative Bud Length

14.6 cm Leaf Length

3.1 cm Leaf Width

0.15 mm Leaf Blade Thickness

13.6 mm Petiole Length

1.7 mm Petiole Thickness

4 Number of Glands per Leaf

1.2 mm Gland Length on Leaf Blade

mm Gland Width on Leaf Blade

Predominant Number of Nectaries (Glands) on the Petiole

2.1 mm Gland Length on Petiole

mm Gland Width on Petiole

2 Leaf Overall Shape

1 Leaf Blade Shape

5 Leaf Margin

5 Leaf Apex Shape

3 Leaf Blade Angle (Recurvature) at Apex

2 Leaf Base Shape

2 Leaf Blade Angle at Base

200400055

Application Variety Data

Leaf (continued)

(IBPGR) Leaf Color, adaxial (upper) surface :

Verbal Color Name GreenColor Chart Name RHS Color Chart Value 146A

(IBPGR) Leaf Color, abaxial (lower) surface :

Verbal Color Name GreenColor Chart Name RHS Color Chart Value 148B3

(IBPGR) Petiole Gland Shape (Nectaries) :

1=Absent 2=Globose (Round) 3=Reniform

FEMALE FLOWERS (at peak flower maturity)

_____ mm Flower Bud Length

_____ Number of Flower Buds per 10 cm Stem Length

_____ Number of Flower Buds per Node

5 Number of Petals per Floret

_____ mm Peduncle Length

_____ mm Flower Diameter

_____ mm Flower Thickness (height)

8.9 mm Petal Length5.8 mm Petal Width3

(IBPGR) Flower Size :

1=Extremely small 2=Very small 3=Small
4=Small-Intermediate 5=Intermediate-Large
7=Large 8=Very Large 9=Extremely large1

(IBPGR) Flower type (shape) :

1=Rosaceous 2=Campanulate 3=Other (describe) _____

1

(IBPGR) Flower type (showiness) :

1=Non-showy 2=Showy

2

Petal Shape :

1=Narrow Elliptic 2=Broad Elliptic 3=Round

Stamen Position, compared to petals :

1=Below 2=Same Level 3=Above

3

Stigma Position, compared to anthers :

1=Below 2=Same Level 3=Above

9

(IBPGR) Anthers/Pollen :

1=Absent 9=Present

9

Ovary Pubescence :

1=Absent 9=Present

Calyx Color, inner side of opened flower before petals fall :

Verbal Color Name _____

Color Chart Name _____ Color Chart Value _____

Flower Color, predominant color on inner side :

Verbal Color Name PinkColor Chart Name RHS Color Chart Value 62A

Most Similar Comparison Variety Data

(IBPGR) Leaf Color, Adaxial

Verbal Color Name GreenName RHS Value 146A

(IBPGR) Leaf Color, Abaxial

Verbal Color Name GreenName RHS Value 148B3

(IBPGR) Petiole Gland Shape (Nectaries)

_____ mm Flower Bud Length

_____ Number of Flower Buds per 10 cm Stem Length

_____ Number of Flower Buds per Node

5 Number of Petals per Floret

_____ mm Peduncle Length

_____ mm Flower Diameter

_____ mm Flower Thickness (height)

_____ mm Petal Length

_____ mm Petal Width

Flower Size

1

Flower type (shape)

2

Flower type (showiness)

Petal Shape :

Stamen Position

Stigma Position

1

Anthers/Pollen

Ovary Pubescence

Calyx Color

Verbal Color Name _____

Name _____ Value _____

Flower Color

Verbal Color Name PinkName RHS Value _____

15

Application Variety Data

Most Similar Comparison Variety Data

MATURE FRUIT

130 Number fruits per tree

160 gm Fruit Weight

mm Fruit Length

mm Fruit Width

70 mm Fruit Thickness (Diameter)

mm Flesh Thickness (from skin to seed)

29.7 kg Total Weight of Fruits per Tree

331 g/cm² Ratio of the Total Fruit Weight to Trunk Cross-Sectional Area (TCSA)

4.9 mm Stalk Length

9.0 mm Depth of Stalk Cavity

11.1 mm Width of Stalk Cavity

2 (IBPGR) Skin Pubescence :
 0=Absent 1=Extremely Low 2=Very Low 3=Low
 4=Low-intermediate 5=Intermediate 6=Intermediate-High
 7=High 8=Very High 9=Extremely High

7 (IBPGR) Fruit Size, average weight of fruits :
 1=Extremely Small 2=Very Small 3=Small
 4=Small-Medium 5=Medium 6=Medium-Large
 7=Large 8=Very Large 9=Extremely Large

4 (IBPGR) Fruit Shape (in profile view) :
 1=Very Flat 2=Slightly Flat 3=Rounded
 4=Ovate 5=Oblong 6=Elongated

3 Shape of Pistil End :
 1=Prominently Pointed 2=Weakly Pointed 3=Flat
 4=Weakly Depressed 5=Strongly Depressed

2 Fruit Symmetry, viewed from pistil end :
 1=Asymmetrical 2=Symmetrical

5 Prominence of Suture :
 3=Weak 5=Medium 7=Strong

(IBPGR) Ground Color of the skin of fully mature fruit :
 Verbal Color Name Yellow-Orange
 Color Chart Name RHS Color Chart Value 15C

2 Red Over Color : 1=Absent 2=Present

(IBPGR) Red over color (Blush); over color of the skin of fully mature fruit :
 Verbal Color Name Red
 Color Chart Name RHS Color Chart Value 46A

1 Pattern of Red Over Color :
 1=Solid Flush 2=Striped 3=Mottled 4=Marbled

70 % of Surface Covered by Red Over Color

154 Number of Fruits per Tree

111 gm Fruit Weight

mm Fruit Length

mm Fruit Width

68 mm Fruit Thickness (Diameter)

mm Flesh Thickness (from skin to seed)

21.7 kg Total Weight of Fruits per Tree

g/cm² Ratio of the Total Fruit Weight to TCSA

4.0 mm Stalk Length

9.3 mm Depth of Stalk Cavity

10 mm Width of Stalk Cavity

5 Skin Pubescence

6 Fruit Size, average weight of fruits

4 Fruit Shape (in profile view)

3 Shape of Pistil End

2 Fruit Symmetry

5 Prominence of Suture

Ground Color of the skin of fully mature fruit
 Verbal Color Name Yellow-Orange
 Name RHS Value 15C

2 Red Over Color

Red over color (Blush)
 Verbal Color Name Red
 Name RHS Value 46A

1 Pattern of Red Over Color

70 % of Surface Covered by Red Over Color

Application Variety Data

Most Similar Comparison Variety Data

MATURE FRUITS (continued)

- 5 Thickness of Skin :
3=Thin 5=Medium 7=Thick
- 5 Adherence of Skin to Flesh :
1-Absent/Very Weak 3=Weak 5=Medium 7=Strong 9=Very Strong
- 3 (IBPGR) Skin Cracking Susceptibility :
1=Extremely Low 2=Very Low 3=Low
4=Low-Medium 5=Medium 6=Medium-High
7=High 8=Very High 9=Extremely High
- (IBPGR) Flesh Color :
Verbal Color Name Yellow
Color Chart Name _____ Color Chart Value _____
- 1 Anthocyanin Coloration directly under the skin :
1=Absent/Very Weak 2=Weak 3=Strong
- 1 Anthocyanin Coloration of the flesh :
1=Absent/Very Weak 2=Weak 3=Strong
- 2 Anthocyanin Coloration around the stone :
1=Absent/Very Weak 2=Weak 3=Strong
- 2 Flesh Type : 1=Non-Melting 2=Melting
- 8 (IBPGR) Firmness of Flesh :
1=Extremely Soft 2=Very Soft 3=Soft 4=Soft-Medium
5=Medium 6=Medium-Firm 7=Firm 8=Very Firm
9=Extremely Firm
- 6 (IBPGR) Texture of Flesh of the fruit when ripe :
1=Extremely Coarse 2=Very Coarse 3=Coarse
4=Coarse-Intermediate 5=Intermediate 6=Intermediate-Fine
7=Fine 8=Very Fine 9=Extremely Fine
- 3 Sweetness : 3=Low 5=Medium 7=High
- 3 Acidity : 3=Low 5=Medium 7=High
- 7 (IBPGR) Eating Quality; a combined assessment of flavor, acidity, sweetness, aroma, and astringency at optimum eating time :
1=Extremely Poor 2=Very Poor 3=Poor
4=Poor-Fair 5=Fair 6=Fair-Good
7=Good 8=Very Good 9=Excellent
- 1 Tendency to Preharvest Drop :
1=Absent 3=Weak 5=Medium 7=Strong 9=Very Strong

- 5 Thickness of Skin
- 5 Adherence of Skin to Flesh
- 5 Skin Cracking Susceptibility
- Flesh Color
Verbal Color Name Yellow
Name _____ Value _____
- 2 Anthocyanin Coloration directly under the skin
- 2 Anthocyanin Coloration of the flesh
- 2 Anthocyanin Coloration around the stone
- 2 Flesh Type
- 6 Firmness of Flesh
- 4 Texture of Flesh of the fruit when ripe
- 5 Sweetness
- 5 Acidity
- 7 Eating Quality
- 3 Tendency to Preharvest Drop

PIT (STONE)

- 4.7 gm Pit (Stone) Weight
- 30.5 mm Pit (Stone) Length
- 19.7 mm Pit (Stone) Width
- 15.5 mm Pit (Stone) Thickness
- (IBPGR) Stone Size :
1=Extremely Small 2=Very Small 3=Small 4=Small-Medium
5=Medium 6=Medium-Large 7=Large 8=Very Large
9=Extremely Large

- 6.5 gm Pit (Stone) Weight
- 35.5 mm Pit (Stone) Length
- 26.6 mm Pit (Stone) Width
- 19.1 mm Pit (Stone) Thickness
- Stone Size

Application Variety Data

Most Similar Comparison Variety Data

PIT (continued)

— (IBPGR) Stone Shape (in profile view):
 1=Flat 2=Round 3=Ovoid
 4=Elongated 5=Very Elongated

Stone Color :

Verbal Color Name Greyed-OrangeColor Chart Name RHS Color Chart Value N170A-B

3 Relief of Surface :
 1=Small Pits 2=Large Pits 3=Grooves 4=Pits and Grooves

— (IBPGR) Stone Adherence to Flesh of Fully Ripe Fruit :
 1=Freestone 2=Semi-freestone 3=Clingstone

1 (IBPGR) Split Stone; percentage of ripe fruit with split stones :
 0=Absent 1=Extremely Low 2=Very Low 3=Low
 4=Low-Medium 5=Medium 6=Medium-High
 7=High 8=Very High 9=Extremely High

— Shape (in profile view)

Stone Color

Verbal Color Name Reddish-PurpleName RHS Value 59A-B/166C-D

3 Relief of Surface

— Stone Adherence to Flesh of Fully Ripe Fruit

3 Split Stone: percentage of ripe fruit with split stones

SEED

0.24 gm Seed Weight

16.2 mm Seed Length

9.7 mm Seed Width

2.7 mm Seed Thickness

0.37 gm Seed Weight

17.2 mm Seed Length

11.9 mm Seed Width

3.3 mm Seed Thickness

ENVIRONMENTAL STRESS SUSCEPTIBILITY : Rate the variety's reaction to the following stresses using the following scale:

1=Extremely low susceptibility (hardy) 2=Very low susceptibility 3=Low Susceptibility 4=Low-moderate susceptibility 5=Moderate susceptibility
 6=Moderate-high susceptibility 7=High susceptibility 8=Very high susceptibility 9=Extremely high susceptibility (tender)

— (IBPGR) Low temperature - winter (on dormant flower buds)

— (IBPGR) Low temperature - spring (on open blossoms to spring frost)

— (IBPGR) High temperature

— (IBPGR) Drought

— (IBPGR) High soil moisture

— (IBPGR) Chlorosis induced by high lime content of the soil

— Low temperature - winter (on dormant flower buds)

— Low temperature - spring (on open blossoms to spring frost)

— High temperature

— Drought

— High soil moisture

— Chlorosis induced by high lime content of the soil

Application Variety Data		Most Similar Comparison Variety Data	
PEST AND DISEASE SUSCEPTIBILITY : Rate the variety's field reaction to the following pests and diseases using the following scale: 1=Extremely low susceptibility (hardy) 2=Very low susceptibility 3=Low Susceptibility 4=Low-moderate susceptibility 5=Moderate susceptibility 6=Moderate-high susceptibility 7=High susceptibility 8=Very high susceptibility 9=Extremely high susceptibility (tender)			
(IBPGR) — Peach twig borer (<i>Anarsia lineatella</i>) — Peach maggot (<i>Ceratitis capitata</i>) — Oriental Peach Moth (<i>Cydia molesta</i>) — Peach Aphid (<i>Myzus persicae</i>) — S. Jose Scale (<i>Quadraspidotus perniciosus</i>) — Other Insects _____		— Peach twig borer (<i>Anarsia lineatella</i>) — Peach maggot (<i>Ceratitis capitata</i>) — Oriental Peach Moth (<i>Cydia molesta</i>) — Peach Aphid (<i>Myzus persicae</i>) — S. Jose Scale (<i>Quadraspidotus perniciosus</i>) — Other Insects _____	
— Brown Rot (<i>Monilia laxa</i> (M. fructigena)) — Powdery Mildew of Peach (<i>Sphaerotheca pannosa</i>) — Peach Scab (<i>Cladosporium carpophyllum</i>) — Shot-Hole (<i>Coryneum beijerinckii</i>) — Canker (<i>Cytospora</i> spp.) — Black Canker (<i>Fusicoccum amygdali</i>) — Silver Blight (<i>Stereum purpureum</i>) — Peach Leaf Curl (<i>Taphrina deformans</i>) — Peach Wilt (<i>Verticillium albo-atrum</i>) — Other Fungi _____		— Brown Rot (<i>Monilia laxa</i> (M. fructigena)) — Powdery Mildew of Peach (<i>Sphaerotheca pannosa</i>) — Peach Scab (<i>Cladosporium carpophyllum</i>) — Shot-Hole (<i>Coryneum beijerinckii</i>) — Canker (<i>Cytospora</i> spp.) — Black Canker (<i>Fusicoccum amygdali</i>) — Silver Blight (<i>Stereum purpureum</i>) — Peach Leaf Curl (<i>Taphrina deformans</i>) — Peach Wilt (<i>Verticillium albo-atrum</i>) — Other Fungi _____	
— Crown Gall (<i>Erwinia tumefaciens</i> (Agrobacterium)) — <i>Pseudomonas mors-prunorum</i> f. <i>persicae</i> — Black Spot (<i>Xanthomonas pruni</i>) — Other Bacteria _____		— Crown Gall (<i>Erwinia tumefaciens</i> (Agrobacterium)) — <i>Pseudomonas mors-prunorum</i> f. <i>persicae</i> — Black Spot (<i>Xanthomonas pruni</i>) — Other Bacteria _____	
— Peach mosaic virus — Peach rosette mosaic virus — Prunus dwarf virus — Prunus ring spot virus — Peach X disease mycoplasma — Other Virus _____		— Peach mosaic virus — Peach rosette mosaic virus — Prunus dwarf virus — Prunus ring spot virus — Peach X disease mycoplasma — Other Virus _____	
— Meloidogyne incognita — Other Meloidogyne spp. _____ — Pratylenchus vulnus — Other Pratylenchus spp. _____		— Meloidogyne incognita — Other Meloidogyne spp. _____ — Pratylenchus vulnus — Other Pratylenchus spp. _____	
Application Variety Data	Page 8	Most Similar Comparison Variety Data	

NOTES and COMMENTS

Tree chilling requirement was estimated based upon bloom date which was consistent with high chill varieties growing in the same and adjacent test plots.

Vegetative descriptions of plant height and width were not included due to tree pruning on a yearly basis which alters natural tree growth.

Detailed evaluations of stress susceptibility were not carried-out. Observations over a 10-year period revealed no outstanding susceptibilities to particular biotic or abiotic stresses, except for the consistent observation of exceptionally late bloom of 'TruGold' which allows for its escape from spring frost injury to blossoms.

20

References:

Descriptor List for Peach (*Prunus persica*). 1984. E. Sellini, R. Watkins, E. Pomarici, editors. IBPGR Secretariat, Rome.

Guidelines for the Conduct of Tests for Distinctness, Uniformity, and Stability. Peach, Nectarine. 1995. Union for the Protection of the New Varieties of Plants, Geneva, Switzerland. UPOV TG/53/6.

Peach Specific Descriptors. 2000. From <http://www.bordeaux.inra.fr/urefv/base/descriptor/descriptor-peach.html>

Description of Doubled Haploid Peach P21-5

P21-5 is a vigorous tree. Flowers are pollen fertile and non-showy. At Kearneysville, West Virginia fruit mature about 2 weeks after 'Redhaven' peach. They are freestone, melting, yellow fleshed. Fruit are very firm at the normal time of commercial picking and remain firm as fruit continue to color on the tree. Harvested fruit also retain their firmness. At harvest approximately 70% of the fruit surface is red blushed (Fig. 1). Fruit size is typically 2.75 inches in diameter on thinned trees. Flavor is good.

P21-5 is unique in that self-pollination produces seed that are genetically identical, allowing for this selection to be seed-propagated. This eliminates the need for bud-grafting onto rootstocks, where a specific adapted rootstock is not required.

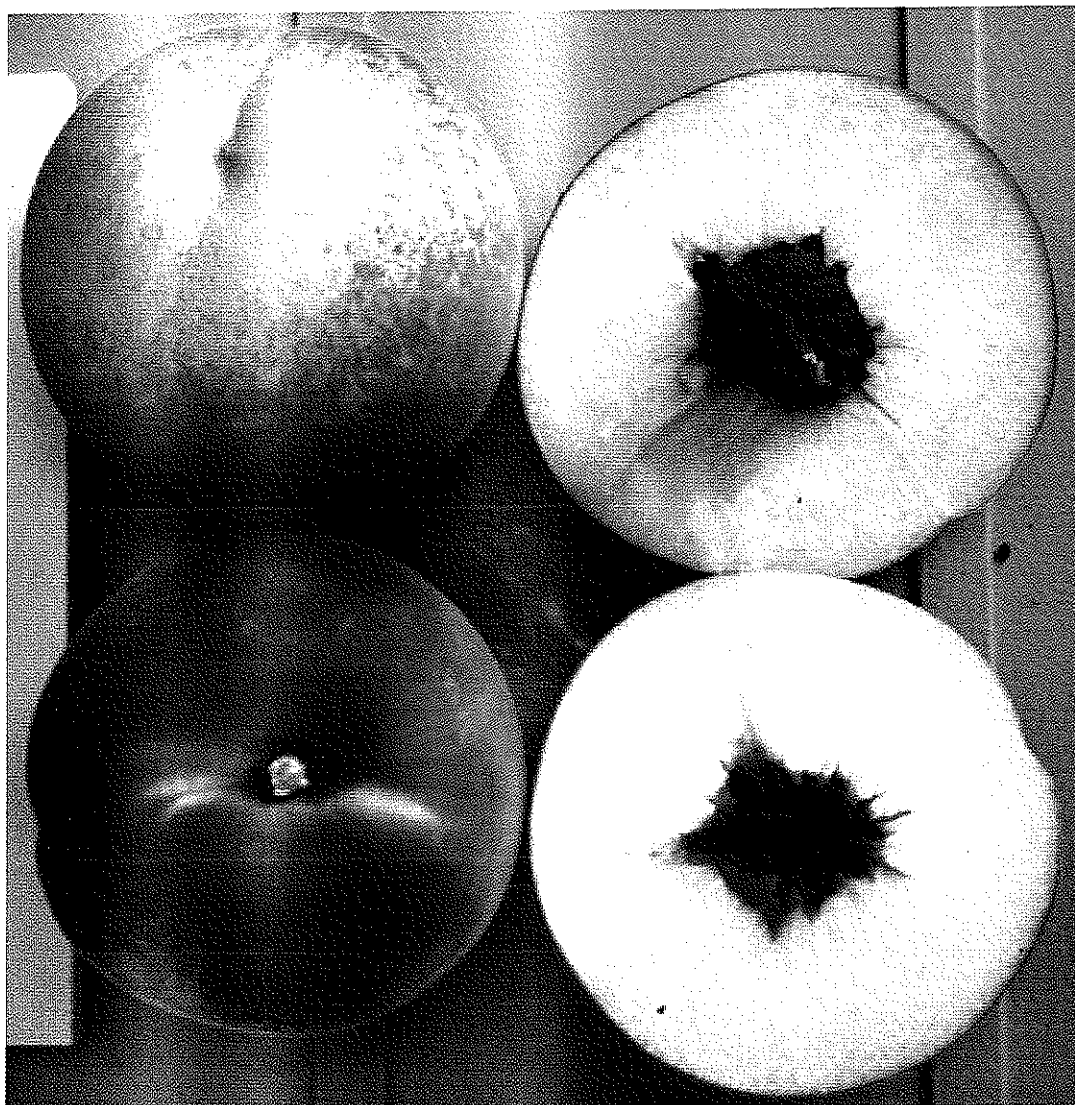


Figure 1.
Fruit of P21-5 doubled haploid peach.

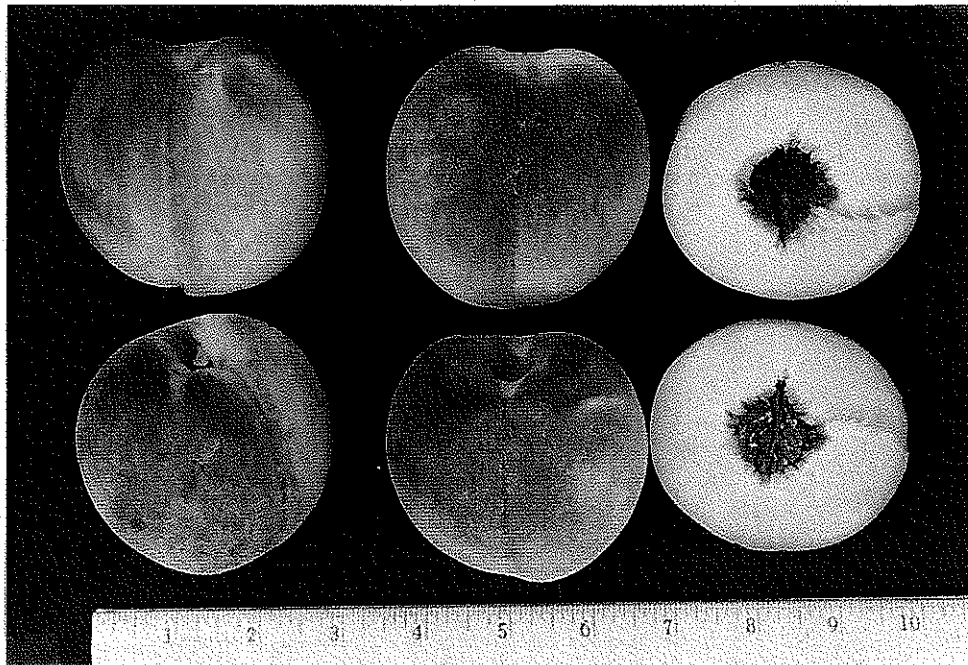
EXHIBIT D - OPTIONAL SUPPORTING DATA

'TruGold' represents a unique combination of doubled haploidy which allows it to be propagated genetically uniformly from seed, late blooming to avoid spring frost damage to flowers, high fruit quality, and the ability to maintain firmness on the tree and post-harvest. 'TruGold' peach could have a number of practical applications in the peach industry. 'TruGold' offers distinct advantages to the home-owner and to the nursery industry serving this segment of the market. Genetic uniformity from seed eliminates vegetative propagation to achieve uniformity. The elimination of grafting onto rootstock would result in savings in time and money for the nurseries. These savings can be passed on to the consumer in less expensive trees. Other advantages for the consumer lie in the ability of 'TruGold' to re-sprout true-to-type following damage from insects, diseases, or from mechanical damage. This would eliminate the disappointment of spending years growing instead of the intended variety, sprouted rootstock that produces poor quality fruit.

'TrueGold' is potentially useful in high-density commercial peach production (HDP) systems. The elimination of grafting and the direct sale of seed-produced trees of 'TrueGold' could significantly reduce the cost of trees, making HDP more economically attractive.

The ability to produce uniform seedlings of 'TrueGold' with high fruit quality may be of particular interest in developing countries where seed propagation is the dominant peach production system.

While the rootstock potential of 'TruGold' remains to be tested, it presents interesting possibilities as a uniform seed-propagated peach rootstock. Since almost all rootstocks currently grown in the United States and much of the rest of the world are of seedling origin, 'TruGold' seed could immediately fit into current rootstock production technology as a uniform, true from seed rootstock.



'TruGold' Fruit

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE**EXHIBIT E**
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) Washington State University Research Foundation and the Secretary of Agriculture, U.S. Department of Agriculture	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER P21-5-2n	3. VARIETY NAME TruGold
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 1610 NE Eastgate Blvd. Pullman, WA 99163 USA	5. TELEPHONE (Include area code) (509) 335-5526	6. FAX (Include area code) (509) 335-7237
7. PVPO NUMBER 2004 00 055		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.

☐ YES☒ NO

The Washington State University Research Foundation (WSURF) considers the variety to be jointly held by WSURF and USDA-ARS. The cultivar was first developed by Washington State University with rights subsequently transferred to WSURF. USDA-ARS evaluated the P21-5-2n doubled haploid peach and self-pollinated it to produce progeny that were then also evaluated for trueness to type. (con'd in block 11)

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.

☒ YES☐ NO

10. Is the applicant the original owner?

☒ YES☐ NOIf no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES☐ NO

If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☒ YES☐ NO

If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

(con'd from block 8): USDA-ARS tested the variety and progeny over several years confirming genetic stability and horticultural qualities.

Block 11: P21-5-2n (TruGold) was developed by Washington State University breeder, Dr. Tom Toyama. Washington State University's interests were subsequently transferred to the Washington State University Research Foundation (WSURF). Dr. Ralph Scorza, USDA-ARS, tested the variety over a number of years and self-pollinated the P21-5-2n doubled haploid peach to obtain homozygous progeny. The true-breeding nature and genetic stability of traits of P21-5-2n and the stability and uniformity of its progeny has continued to be tested by Dr. Scorza. WSURF therefore considers USDA-ARS to be joint owner of TruGold.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 0.1 hour per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.